Amendments to the Claims

Claim 1 **(Currently Amended)** An optical disc apparatus for reading out information recorded on an optical disc by irradiating an optical beam on the optical disc, the optical disc apparatus comprising:

a rotation unit operable to rotate the optical disc;

a moving unit operable to move a spot where the optical beam is irradiated on the optical disc in a radius direction of the optical disc;

a linear velocity detection unit operable to detect a linear velocity of the spot;

a rotation control unit operable to control the rotation unit so that the linear velocity detected by the linear velocity detection unit remains substantially constant at ~~on~~ an arbitrary radius location on the optical disc, when information recorded on the optical disc is read out; ~~and~~

a moving time control unit operable to control at least one of the rotation unit and the moving unit so as to prevent the linear velocity detected by the linear velocity detection unit from decreasing to a permissible linear velocity or below, when the moving unit moves the ~~spot~~ spot; and

a type distinction unit operable to distinguish a type of the optical disc to be irradiated by the optical beam, the type being classified based on a recording sensitivity to a predetermined laser wavelength,

wherein the moving time control unit is operable to change the permissible linear velocity according to the type of the optical disc distinguished by the type distinction unit.

Claim 2 **(Currently Amended)** The optical disc apparatus according to Claim 1,

wherein, when the moving unit moves ~~moving~~ the spot along the radius direction of the optical disc, the moving time control unit is operable to make ~~makes~~ a location profile indicating a relation between a radius location and a moving time corresponding to the movement of the spot and control ~~controls~~ the moving unit so that the spot is moved along the location profile, and

the moving time control unit is operable to revise ~~revises~~ the location profile so as to prevent the linear velocity from decreasing and control ~~controls~~ the moving unit so that the spot is moved along a revised location profile as the linear velocity detected by the linear velocity detection unit nears ~~to~~ the permissible linear velocity.

Claim 3 **(Currently Amended)** The optical disc apparatus according to Claim 2,

wherein the rotation control unit is operable to make ~~makes~~ the rotation unit increase a rotation velocity of the optical disc when the moving unit moves the spot from an outer radius to an inner radius of the optical disc, and

the moving time control unit is operable to revise ~~revises~~ the location profile so that a moving velocity of the spot is decreased by the moving unit when the linear velocity detected by the linear velocity detection unit nears ~~to~~ the permissible linear velocity during the movement.

Claim 4 **(Currently Amended)** The optical disc apparatus according to Claim 2,

wherein the rotation control unit is operable to make ~~makes~~ the rotation unit decrease a ~~the~~ rotation velocity of the optical disc when the moving unit moves the spot from an inner radius to an outer radius of the optical disc, and

the moving time control unit is operable to revise ~~revises~~ the location profile so that a moving velocity of the spot is increased by the moving unit when the linear velocity detected by the linear velocity detection unit nears ~~to~~ the permissible linear velocity during the movement.

Claim 5 **(Canceled)**

Claim 6 **(Currently Amended)** The optical disc apparatus according to Claim ~~5~~ 2,

wherein the moving time control unit is operable to make ~~makes~~ the location profile according to the type of the optical disc determined by the type distinction unit.

Claim 7 **(Currently Amended)** The optical disc apparatus according to Claim ~~5~~ 2, further comprising:

a focus error output unit operable to output a focus error signal indicating a distance between a focus of the optical beam and the optical disc. ~~disc; and~~

wherein the type distinction unit is operable to distinguish ~~distinguishes~~ the type of the optical disc based on the focus error signal outputted by the focus error output unit.

Claim 8 **(Currently Amended)** The optical disc apparatus according to Claim ~~5~~ 2,

wherein the type distinction unit is operable to identify an ~~identifies the~~ optical beam output necessary for reading out information from the optical disc and determine ~~determines~~ the type of the optical disc based on a distinction result.

Claim 9 **(Currently Amended)** The optical disc apparatus according to Claim 2,

wherein the linear velocity detection unit is operable to detect ~~detects~~ the linear velocity based on a rotation velocity of the optical disc and a ~~the~~ radius location of ~~a~~ the spot on the optical disc.

Claim 10 **(Currently Amended)** The optical disc apparatus according to Claim 9,

wherein the linear velocity detection unit is further operable to detect ~~detects~~ the linear velocity based on a moving velocity of the spot moved by the moving unit in ~~to~~ the radius direction.

Claim 11 **(Currently Amended)** The optical disc apparatus according to Claim 1,

wherein the moving time control unit is operable to change ~~changes~~ a moving velocity of the spot by the moving unit so as to prevent the linear velocity from decreasing when the linear velocity detected by the linear velocity detection unit nears ~~to~~ the permissible linear velocity.

Claim 12 **(Currently Amended)** The optical disc apparatus according to Claim 11,

wherein the rotation control unit is operable to make ~~makes~~ the rotation unit increase a rotation velocity of the optical disc when the moving unit moves the spot from an outer radius to an inner radius of the optical disc, and

the moving time control unit is operable to make ~~makes~~ the moving unit decrease the moving velocity of the spot when the linear velocity detected by the linear velocity detection unit nears ~~to~~ the permissible linear velocity during the movement.

Claim 13 **(Currently Amended)** The optical disc apparatus according to Claim 11,

wherein the rotation control unit is operable to make ~~makes~~ the rotation unit decrease a rotation velocity of the optical disc when the moving unit moves the spot from an inner radius to

an outer radius of the optical disc, and

the moving time control unit is operable to make ~~makes~~ the moving unit increase the moving velocity of the spot when the linear velocity detected by the linear velocity detection unit nears ~~to~~ the permissible linear velocity during the movement.

Claim 14 **(Currently Amended)** The optical disc apparatus according to Claim 1,

wherein the moving unit is operable to change ~~changes~~ a moving velocity of the spot along the radius direction of the optical disc according to a drive signal ~~obtained from an outside~~, and

the moving time control unit is operable to change ~~changes~~ the drive signal by applying an offset signal on the drive signal so as to prevent the linear velocity from decreasing when the linear velocity detected by the linear velocity detection unit nears ~~to~~ the permissible linear velocity.

Claim 15 **(Currently Amended)** The optical disc apparatus according to Claim 14,

wherein the rotation control unit is operable to make ~~makes~~ the rotation unit increase a rotation velocity of the optical disc when the moving unit moves the spot from an outer radius to an inner radius of the optical disc, and

the moving time control unit is operable to apply ~~applies~~ an offset signal which decreases the ~~makes it possible to decrease~~ moving velocity of the spot by the moving unit when the linear velocity detected by the linear velocity detection unit nears ~~to~~ the permissible linear velocity during the movement.

Claim 16 **(Currently Amended)** The optical disc apparatus according to Claim 14,

wherein the rotation control unit is operable to make ~~makes~~ the rotation unit decrease a rotation velocity of the optical disc when the moving unit moves the spot from an inner radius to an outer radius of the optical disc, and

the moving time control unit is operable to apply ~~applies~~ an offset signal which increases ~~makes it possible to increase~~ the moving velocity of the spot by the moving unit when the linear velocity detected by the linear velocity detection unit nears ~~to~~ the permissible linear velocity during the movement.

Claim 17 **(Currently Amended)** The optical disc apparatus according to Claim 1,

wherein the moving time control unit is operable to adjust ~~adjusts~~ a rotation velocity of the optical disc by the rotation unit.

Claim 18 **(Currently Amended)** The optical disc apparatus according to Claim 17,

wherein the rotation control unit is operable to output a drive signal that is obtained by the rotation unit, ~~unit obtains a drive signal outputted by the rotation control unit~~ and the rotation unit is operable to change ~~changes~~ the rotation velocity of the optical disc according to the drive signal, and

the moving time control unit is operable to amplify ~~amplifies~~ the drive signal so as to prevent the linear velocity from decreasing when the linear velocity detected by the linear velocity detection unit nears ~~to~~ the permissible linear velocity.

Claim 19 **(Currently Amended)** The optical disc apparatus according to Claim 17,

wherein the rotation control unit is operable to output a drive signal that is obtained by the rotation unit, ~~unit obtains a drive signal outputted by the rotation control unit~~ and the rotation unit is operable to change ~~changes~~ the rotation velocity of the optical disc according to the drive signal, and

the moving time control unit is operable to apply ~~applies~~ an offset signal on the drive signal and change ~~changes~~ the drive signal so as to prevent the linear velocity from decreasing when the linear velocity detected by the linear velocity detection unit nears ~~to~~ the permissible linear velocity.

Claim 20 **(Currently Amended)** The optical disc apparatus according to Claim 17,

wherein the moving time control unit is operable to make ~~makes~~ the rotation unit transit the rotation velocity of the optical disc so as to make the rotation velocity of the optical disc faster than a ~~the~~ rotation velocity corresponding to a target radius location at a ~~the~~ time when the spot reaches a ~~to the~~ target radius location of the spot when the moving unit moves the spot to the target radius location along the radius direction of the optical disc.

Claim 21 **(Canceled)**

Claim 22 **(Currently Amended)** An irradiation method for irradiating an optical beam on a ~~the~~ optical disc, the optical beam being for reading out information recorded on the ~~an~~ optical disc, the irradiation method comprising:

a rotation operation of rotating ~~step in which a motor rotates~~ the optical disc with a motor;

a moving operation of moving ~~step in which a traverse moves~~ a spot where the optical beam is irradiated on the optical disc in ~~irradiated with the optical beam to~~ a radius direction of the optical disc with a traverse;

a linear velocity detection operation ~~step~~ of detecting a linear velocity of the spot;

a rotation control operation ~~step~~ of controlling the motor so that the linear velocity detected in the linear velocity detection operation ~~step~~ remains substantially constant at ~~in~~ an arbitrary radius location on the optical disc, ~~disc~~ when information recorded on the optical disc is read out; ~~and~~

a moving time control operation ~~step~~ of controlling at least one of the motor and the traverse so as to prevent the linear velocity detected in the linear velocity detection operation ~~step~~ from decreasing to a permissible linear velocity or below, ~~below~~ when the spot is moved by the ~~traverse.~~ traverse; and

a type distinction operation of distinguishing a type of the optical disc to be irradiated by the optical beam, the type being classified based on a recording sensitivity to a predetermined laser wavelength,

wherein the moving time control operation includes changing the permissible linear velocity according to the type of the optical disc distinguished in the type distinction operation.

Claim 23 **(Currently Amended)** The irradiation method ~~for the optical beam~~ according to Claim 22,

wherein ~~wherein, in~~ the moving time control operation includes making ~~step,~~ a location profile showing a relation between a radius location and a moving time corresponding to the movement of the spot and controlling ~~is made,~~ the traverse ~~is controlled~~ so that the spot is moved ~~moves~~ along the location profile, and

revising the location profile ~~is revised~~ so as to prevent the linear velocity from decreasing when the linear velocity detected in the linear velocity detection operation ~~step~~ nears ~~to~~ the

permissible linear velocity ~~velocity,~~ and controlling the traverse ~~is controlled~~ so that the spot is moved along a revised location profile.

Claim 24 **(Canceled)**

Claim 25 **(Currently Amended)** The irradiation method ~~for the optical beam~~ according to Claim 22,

wherein ~~wherein, in~~ the moving time control operation includes adjusting a ~~step,~~ ~~the~~ rotation velocity of the optical disc by the motor ~~is adjusted~~.

Claim 26 **(Currently Amended)** A program recorded on a computer readable medium for making a computer execute an irradiation method for irradiating an optical beam on an optical disc, the optical beam being for reading out information recorded on the optical disc, the program comprising:

a rotation operation of rotating ~~step in which a motor rotates~~ the optical disc with a motor;

a moving operation of moving ~~step in which a traverse moves~~ a spot where the optical beam is irradiate on the optical disc in ~~irradiated by the optical beam to~~ a radius direction of the optical disc with a traverse;

a linear velocity detection operation ~~step~~ of detecting a linear velocity of the spot;

a rotation control operation ~~step~~ of controlling a motor so that the linear velocity detected in the linear velocity detection operation ~~step~~ remains substantially constant at ~~in~~ an arbitrary radius location on the optical disc, ~~disc~~ when information recorded on the optical disc is read out; ~~and~~

a moving time control operation ~~step~~ of controlling at least one of the motor and the traverse so as to prevent the linear velocity detected in the linear velocity detection operation ~~step~~ from decreasing to a permissible linear velocity or below, ~~below~~ when the spot is moved by the ~~traverse~~ traverse; and

a type distinction operation of distinguishing a type of the optical disc to be irradiated by the optical beam, the type being classified based on a recording sensitivity to a predetermined laser wavelength.

wherein the moving time control operation includes changing the permissible linear velocity according to the type of the optical disc distinguished in the type distinction operation.

Claim 27 **(Currently Amended)** The program according to Claim 26,

wherein~~wherein, in~~ the moving time control operation includes making ~~step,~~ a location profile showing a relation between a radius location and a moving time corresponding to the movement of the spot ~~movement,~~ and controlling the traverse ~~is controlled~~ so that the spot is moved ~~moves~~ along ~~a~~ the location profile, and

revising the location profile ~~is revised~~ so as to prevent the linear velocity from decreasing when the linear velocity detected in the linear velocity detection operation nears the permissible linear velocity, and controlling the traverse ~~is controlled~~ so that the spot is moved ~~moves~~ along a revised location profile ~~when the linear velocity detected in the linear velocity detection step nears to the permissible linear velocity~~.

Claim 28 **(Canceled)**

Claim 29 **(Currently Amended)** The program according to Claim 26,

wherein~~wherein, in~~ the moving time control operation includes adjusting ~~step,~~

~~——~~a rotation velocity of the optical disc by the motor ~~is adjusted~~.

Claim 30 **(New)** The optical disc apparatus according to Claim 1,

wherein the type distinction unit is operable to distinguish one of the following optical discs which is to be irradiated by the optical beam:

a first optical disc which needs to be irradiated by an optical beam having a laser wavelength of 405 nm and an output of 0.3 mW in order to read out the recorded information;

a second optical disc which needs to be irradiated by an optical beam having a laser wavelength of 650 nm and an output of 1 mW in order to read out the recorded information; and

a third optical disc which needs to be irradiated by an optical beam having a laser wavelength of 780 nm and an output of 0.7 mW in order to read out the recorded information.

Claim 31 **(New)** The optical disc apparatus according to Claim 1,

wherein the type distinction unit is operable to distinguish one of following optical discs which is to be irradiated by the optical beam:

a first optical disc on which the spot needs to be moved in the radius direction at a linear velocity of 4.917 m/s in order to read out the recorded information;

a second optical disc on which the spot needs to be moved in the radius direction at a linear velocity ranging from 8.16 to 8.49 m/s in order to read out the recorded information; and

a third optical disc on which the spot needs to be moved in the radius direction at a linear velocity of 1.3 m/s in order to read out the recorded information.